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FOOD HEATING AND THE FORMATION OF HETEROCYCLIC AROMATIC AMINE MUTAGENS/CARCINOGENS.

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Several heterocyclic amines that are mutagenic and carcinogenic have been found as cooking products of muscle meats and some grain-based foods. Amounts in meats range from undetectable levels (less than 0.5 ppb) after boiling, microwave-cooking, and baking, to tens to hundreds of ppb for frying/grilling at high temperatures. A mutagenic response, believed to be caused by aromatic amines, was shown with some toasted foods, but the identity of the mutagenic chemicals are different from those found in meats. The airborne products from cooking also contain many of the same heterocyclic amines. Commercial cooking generally forms less of the heterocyclic amines than home cooking due to industry cooking practices. This work was performed under the auspices of the U.S. DOE by LLNL under contract W-7405-Eng-48 and supported by NCI grant CA55861.